AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-16 (Cancelled).

17. (Currently Amended) A stage assembly for manufacturing semiconductor wafers, comprising:

a stage to position at least one substrate, the stage being moved by a force generator in response to a wafer manufacturing control system;

a base having an upper side supporting the stage, the base being allowed to move in response to a reaction force generated by the force generator;

at least one bearing to support the base allowing the base to move relative to a stationary surface; and

at least one actuator to control movement of the base, the movement being caused by at least one of a disturbance force and the reaction force, the at least one actuator comprising an actuator disposed adjacent to a side outer surface of the base to generate a correction torque about an axis perpendicular to the upper side of the base.

18. (Original) The stage assembly of claim 17, wherein the stage and the base move in opposite directions and travel inversely proportionate distances corresponding to a stage mass and a base mass.

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19. (Original) The stage assembly of claim 18, wherein a combined center of gravity of the stage and the base remains stationary.

20. (Original) The stage assembly of claim 17, wherein the at least one bearing comprises one of a plurality of pneumatic bearings, magnetic bearings, and mechanical bearings, and a combination thereof.

21. (Original) The stage assembly of claim 20, wherein the plurality of pneumatic bearings comprise:

a first layer of pressurized air to allow the base to move linearly along a first axis and a second axis, and to rotate around a third axis, the first, second, and third axes being orthogonal to each other.

22. (Original) The stage assembly of claim 21, wherein the plurality of pneumatic bearings further comprise:

a second layer of pressurized air to allow a top flat surface of each of the plurality of pneumatic bearings to conform to an undersurface of the base.

23. (Original) The stage assembly of claim 17, wherein the at least one actuator comprises one of a plurality of voice-coil motors, planar motors, linear motors, rotary motors with linkages, springs, dampers, and a combination thereof.

24. (Original) The stage assembly of claim 17, further comprising:

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a sensor to detect at least one of an actual position, an actual velocity, and an actual acceleration of the base.

25. (Original) The stage assembly of claim 24, further comprising:

a control system to determine an error signal for the at least one actuator to generate a correction force to cancel the at least one of the disturbance force and the reaction force.

26. (Original) The stage assembly of claim 25, wherein the error signal is calculated based on a discrepancy between at least one of the actual position, the actual velocity, the actual acceleration, and a corresponding predetermined position, predetermined velocity, and predetermined acceleration of the base.

27. (Original) The stage assembly of claim 17, wherein the base has at least one degree of freedom, and the at least one actuator is capable of constraining the movement of the base in at least one degree of freedom.

28. (Original) The stage assembly of claim 27, wherein the at least one actuator comprises:

a first actuator disposed adjacent to the base to generate a first correction force.

29. (Original) The stage assembly of claim 28, wherein the at least one actuator further comprises:

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a second actuator disposed adjacent to the base to generate a second correction force.

Claim 30 (Cancelled).

31. (Original) The stage assembly of claim 29, wherein the first actuator generates the first correction force acting in a first direction, and the second actuator generates the second correction force acting in a second direction.

32. (Currently Amended) The stage assembly of claim [[30]] 29, wherein the first actuator generates the first correction force acting in a first direction passing through a center of gravity of the base, and the second actuator generates the second correction force acting in a second direction passing through the center of gravity of the base, and the actuator disposed adjacent to the side outer surface of the base generates the correction torque around a third direction.

33. (Original) A projection lens assembly comprising the stage assembly of claim 17.

34. (Original) An object on which an image has been formed by the projection lens of assembly of claim 33.

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35. (Original) A lithography system comprising the projection lens assembly of claim 33.

36. (Currently Amended) A stage assembly for manufacturing semiconductor wafers comprising:

a stage to position at least one substrate, the stage being moved in accordance with a wafer manufacturing control system;

a base having an upper side supporting the stage, the base being allowed to move in response to a reaction force generated by a movement of the stage;

at least one bearing to allow the base to levitate above a stationary surface; and

at least one actuator to control movement of the base, the movement being caused by at least one of a disturbance force and the reaction force, the at lest one actuator comprising an actuator disposed adjacent to a side outer surface of the base to generate a correction torque about an axis perpendicular to the upper side of the base.

37. (Original) The stage assembly of claim 36, wherein the stage and the base move in opposite directions traveling inversely proportionate distances corresponding to a stage mass and a base mass.

38. (Original) The stage assembly of claim 37, wherein a combined center of gravity of the stage and the base remains stationary.

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39. (Currently Amended) The stage assembly of claim 36, wherein the at ~~lease~~ least one bearing comprises:

one of a plurality of pneumatic bearings, magnetic bearings, and mechanical bearings, and a combination thereof.

40. (Original) The stage assembly of claim 39, wherein the plurality of pneumatic bearings comprise:

a first layer of pressurized air to allow the base to move linearly along a first axis and a second axis, and to rotate around a third axis, the first, second, and third axes being orthogonal to each other.

41. (Original) The stage assembly of claim 40, wherein the plurality of pneumatic bearings further comprise:

a second layer of pressurized air to allow a top flat surface of each of the plurality of pneumatic bearings to conform to an undersurface of the base.

42. (Original) The stage assembly of claim 36, wherein the at least one actuator comprises:

one of a plurality of voice-coil motors, planar motors, linear motors, rotary motors with linkages, springs, dampers, and a combination thereof.

43. (Original) The stage assembly of claim 36, further comprising:

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at least one sensor to detect at least one of an actual position, an actual velocity, and an actual acceleration of the base.

44. (Original) The stage assembly of claim 43, further comprising:

a control system to determine an error signal for the at least one actuator to generate at least one of a correction force and a correction torque to control the position of the base.

45. (Original) The stage assembly of claim 44, wherein the error signal is calculated based on a discrepancy between at least one of the actual position, the actual velocity, and the actual acceleration, and a corresponding predetermined position, predetermined velocity, and predetermined acceleration of the base.

46. (Original) The stage assembly of claim 36, wherein the base has at least one degree of freedom, and the at least one actuator is capable of constraining the movement of the base in at least one degree of freedom.

47. (Original) The stage assembly of claim 46, wherein the at lest one actuator comprises:

a first actuator disposed adjacent to the base to generate a first correction force.

48. (Original) The stage assembly of claim 47, wherein the at least one actuator further comprises:

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a second actuator disposed adjacent to the base to generate a second correction force.

Claim 49 (Cancelled).

50. (Original) A projection lens assembly comprising the stage assembly of claim 36.

51. (Original) An object on which an image has been formed by the projection lens assembly of claim 50.

52. (Original) A lithography system comprising the projection lens assembly of claim 50.

Claims 53-75 (Cancelled).

76. (Original) The stage assembly system of claim 36, wherein the at least one actuator comprises a first unit connected to the base and a second unit connected to the stationary surface, the second unit being connected to the first unit magnetically.

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77. (Original) The stage assembly of claim 76, wherein the at least one actuator generates a driving force by utilizing a magnetic field.

78. (Original) The stage assembly of claim 77, wherein the at least one actuator generates a driving force by utilizing a Lorentz force.

79. (Original) The stage assembly of claim 78, wherein the at least one actuator comprises one of a voice coil motor, a planar motor, and a linear motor.

80. (Previously Presented) A stage assembly for manufacturing semiconductor wafers comprising:

a stage to position at least one substrate, the stage being moved by a force generator in response to a wafer manufacturing control system;

a base supporting the stage, the base being allowed to move in response to a reaction force generated by a force generator;

a plurality of pneumatic bearings to support the base allowing the base to move relative to a stationary surface, the plurality of pneumatic bearings comprising a first layer of pressurized air to allow the base to move linearly along a first axis and a second axis, and to rotate around a third axis, the first, second, and third axes being orthogonal

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to each other, and a second layer of pressurized air to allow a top flat surface of each of the plurality of pneumatic bearings to conform to an undersurface of the base; and

at least one actuator to control movement of the base, the movement being caused by at least one of a disturbance force and the reaction force.

81. (Previously Presented) A stage assembly for manufacturing semiconductor wafers, comprising:

a stage to position at least one substrate, the stage being moved in accordance with a wafer manufacturing control system;

a base supporting the stage, the base being allowed to move in response to a reaction force generated by a movement of the stage;

a plurality of pneumatic bearings to allow the base to levitate above a stationary surface, the plurality of pneumatic bearings comprising a first layer of pressurized air to allow the base to move linearly along a first axis and a second axis, and to rotate around a third axis, the first, second, and third axes being orthogonal to each other, and a second layer of pressurized air to allow a top flat surface of each of the plurality of pneumatic bearings to conform to an under surface of the base; and

at least one actuator to control movement of the base, the movement being caused by at least one of a disturbance force and a reaction force.

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